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FOLEY HOAG, LLP
PATENT GROUP, WORLD TRADE CENTER WEST
155 SEAPORT BLVD
BOSTON, MA 02110

EXAMINER	
CHOI, PETER H	
ART UNIT	**PAPER NUMBER**
3623	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/801,130	BONABEAU, ERIC W.	
	Examiner	Art Unit	
	Peter Choi	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *1/30/06*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Summary Of Instant Office Action

1. Applicant's arguments regarding claims 1-7, 9-30, and 32-40 rejected under 35 U.S.C. 103, in the Office Action mailed February 9, 2005 have been fully considered and are responded to below.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-7, 9-17, 19-30 and 32-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keane (U.S Patent #5,737,581) in view of Shinagawa et al (U.S Patent #5,897,629).

As per claim 1, Keane teaches a method for generating business models for solving a selected business problem, the method comprising:

(a) describing a plurality of computer-simulateable business models **(memory 102 contains at least a quality model 104 and possibly other models, such as business 105, accounting 106, consumer 107, financial 108, and macroeconomic 109)**, [Column 3, lines 25-30, Column 7, lines 6-8 and Figure 1 {104, 105, 106, 108 and 109}], wherein a business model describes operations of businesses for solving the business problem **(enable a user to make certain decisions regarding which quality assurance measures to install; business model 400)** [Figure 4 {400}, described Column 2, lines 52-55 and Column 7, line 6 - Column 8, line 25], and wherein a business model has an associated operational performance model **(which is inferred by the enablement of a user to make certain decisions regarding which quality assurance measures to install)** [Figure 1 {105} and column 2, lines 54-55], and wherein business model descriptions **(as discussed above)** comprise one or more computer-simulateable value propositions (VP) which describe output values provided by businesses **(goods/services purchased by customers, returning defective merchandise and switching to competitive produces due to defects, product purchased data 214 and market demand and returns data 227)** [Column 5, lines 29-55];

(b) describing a business-model environment **(product flow)**, wherein the business-model environment comprises a plurality of computer-simulateable customer models **(customer and business models)**, wherein the customer models patronize the business models and the business models respond to the customer models' patronizing them by sending values **(product purchased data 214 and market demand and**

returns data 227) to the customer models that patronize the business models **(business model receives information regarding consumer returns from Block 807 of the consumer model)** [Column 5, lines 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25]; and

(c) determining the operational performances of the businesses described by the plurality of business models by simulating [Column 4, lines 34-36 and Figs. 2 and 4, wherein execution (or implementation) of steps of the Figures and simulation of the system infer operations for determining performance of business(es) in accordance with above discussed plurality of business models]:

(i) the plurality of business models **(memory 102 contains at least a quality model 104 and possibly other models, such as business 105, accounting 106, consumer 107, financial 108, and macroeconomic 109)**; [Figure 1 {100 and 104, 105, 106, 108, 109}, and Column 3, lines 25-30] and

(ii) the business-model environment, including simulating the customer models receiving values from the business models in response to the customer models patronizing the business models **(business model receives information regarding consumer returns from Block 807 of the consumer model, product purchased data 214, market demand and returns data 227)** [Column 5, lines 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25].

Keane does not teach the step of:

(d) generating a next plurality of business models from the simulated plurality of business models by performing an evolutionary method including:

(i) determining business-model fitness in dependence on the operational business-model performances,

(ii) selecting one or more business models in dependence on their fitness, and

(iii) transforming the selected business models into new business models by applying one or more genetic operators, wherein the new business models incorporate elements of the selected business models.

Shinagawa et al. is directed to utilizing genetic algorithm to find an optimal solution to a problem, resulting in the creation of new and modified delivery routes.

However, Shinagawa et al teaches the step of:

generating **(producing)** a next plurality of business models **(new proposed delivery plans)** by performing an evolutionary method [Column 5, line 66 through column 6, line 54, wherein delivery planning unit 12 producing or "generating" a set or "plurality" of modified or new proposed delivery plans as indicated by column 6, lines 35-40; modified delivery route serving as new or next route and on finalizing said modified or new or next routes for all carriers, delivery planning unit 12 producing or generating new or next delivery plans which are termed as proposed delivery plans; said delivery plans are models, lines 50-52. Moreover, said delivery models or plans representing "business models", since they relate to the business of delivery of

packages, lines 52-54, and cited genetic algorithm, Column 4, lines 63-65; searching strategy optimization means 1 creates individuals 3a-3c using a genetic algorithm. The individuals 3a-3c have their respective chromosomes, each of which indicates a strategy for solution search, Column 4, lines 29-34] including:

(i) determining business-model fitness in dependence on the operational business-model performances [Column 6, lines 15-23, wherein "evaluating fitness" of proposed delivery plans or models indicating "determining business model fitness" and said fitness relating to "operational business model performance" as discussed in claim 1c above; The carrier allocation unit 11 evaluates the fitness of each proposed delivery plan received from the delivery planning unit 12, Column 9, lines 12-14; The carrier allocation unit 11 evaluates chromosomes 50, 50a, and 50b by calculating the fitness values of delivery plans 41, 42, and 43 derived from them, respectively, Column 9, lines 21-24];

(ii) selecting one or more business models in dependence of on their fitness [Column 6, lines 15-23, wherein allocation unit 11 "selecting fittest individuals based on their fitness values", and cited individuals pointing to delivery plans or models or "business models", column 2, lines 22-23: individuals being candidate solutions, and said solutions are delivery plans, column 6, lines 21-23: choosing delivery plans or models as the optimal solutions; Based on the fitness values, the carrier allocation unit 11 selects a plurality of individual pairs, Column 9, lines 15-16];

(iii) transforming the selected business models into new business models by applying one or more genetic operators [Column 5, lines line 66 through column 6, line

3, wherein applying genetic algorithm and its operators crossover, mutation etc. indicating reference's performing "transformation or transforming" above discussed selected delivery plans or models or business models into above discussed next or new delivery plans or business models. In support of genetic algorithm and operators thereof performing transformation, Applicant is referred to US Patent 6,480,832 B2, column 3, lines 53-65: Genetic algorithms transform populations into new populations, lines 54-55].

While Keane provides a simulator for simulating quality of a business's product flow, Shinagawa et al teach a simulating system including genetic algorithm comprising selection, crossover and mutation operators for building a fittest business model for delivery. Both Keane and Shinagawa et al are analogous art in the field of business modeling; thus, it would have been obvious to one of ordinary skill in the relevant art at the time of instant invention to include Shinagawa et al's features into Keane's invention, because the combination would provide a system enabling a user to efficiently and quickly solve multi-constraint problems as commonly faced by businesses.

As per claims 2 and 29, Keane teaches the method of claim 1/28 further comprising repeating one or more times (c) and (d) **(running another period of the model)**, wherein each repeat of (c) simulates the plurality of business models resulting from the previous iteration of (d) [Figure 2 {254}, column 4, lines 34-38 recited with

column 6, lines 39-49, wherein "simulation continues" after the determination made at step 254, and "user given the opportunity to reconfigure (generate) next (or new) quality model to improve performance" inferring claimed "repeating the steps" for simulating models obtained in the prior (or previous) steps as per user's choice of steps including (c) and (d)].

As per claims 3 and 16, Keane teaches the method of claim 1/15 wherein the business models **(memory 102 contains at least a quality model 104 and possibly other models, such as business 105, accounting 106, consumer 107, financial 108, and macroeconomic 109)**, [Column 3, lines 25-30, Column 7, lines 6-8 and Figure 1 {104, 105, 106, 108 and 109}] are elements for solving the business problem **(enable a user to make certain decisions regarding which quality assurance measures to install; business model 400; which is inferred by the enablement of a user to make certain decisions regarding which quality assurance measures to install)** [Figure 4 {400}, described Column 2, lines 52-55 and Column 7, line 6 - Column 8, line 25, Figure 1 {105} and column 2, lines 54-55].

Keane does not teach that the business models are elements in a space of business models. However, Shinagawa et al. teaches the use of a solution space (indicating that each possible solution is a sub-element within said solution space) [Column 13, lines 41-51, Figure 4, Column 6, lines 50-52].

While Keane provides a simulator for simulating quality of a business's product flow, Shinagawa et al. teaches a simulating system including genetic algorithm comprising selection, crossover and mutation operators, and the combination would provide a system enabling a user efficiently and quickly solve multi-constraint problems globally or in consideration of entire space. Thus, it would have been obvious to one of ordinary skill in the relevant art at the time of current invention to incorporate Shinagawa et al's feature into Keane's invention for the above stated reason.

As per claim 4, Keane teaches the method of claim 1 wherein at least two business models interact, and wherein (c) further comprises simulating interactions between business models [Column 1, lines 11-12 and Column 6, lines 52-55].

As per claims 5 and 22, Keane does not explicitly teach the method of claim 1/21 wherein the genetic operators comprise a cross-over operator which transforms at least two parent business models into at least one new business model by combining characteristics of both parent business models into the characteristics of the at least one new business model.

Keane teaches business models (as discussed above) but not cross-over operators which transform at least two parent business models into at least one new business model by combining characteristics of both parent business models into the characteristics of the at least one new business model. However, Shinagawa et al teach

a cross-over process combining one part one parent chromosome with the other part of the other parent chromosome to produce another chromosome, thereby producing a new individual [Column 2, lines 37-43] in the models is a function which crossover operator performs.

While Keane provides a simulator for simulating quality of a business's product flow, Shinagawa et al teach genetic algorithm comprising crossover operator, and the combination would provide a system enabling a user efficiently and quickly solve multi-constraint problems as commonly faced by businesses. It would have been obvious to one of ordinary skill in the relevant art at the time of instant invention to include Shinagawa et al's features into the Keane's invention for the reason cited above.

As per claims 6 and 23, although not taught by Keane, Shinagawa et al. teaches the method of claim 1/21 wherein the genetic operators comprise a mutation operator **(mutation process)** which transforms a parent business model into a new business model by modifying a characteristic of the parent business model **(changes genes located in certain loci of a chromosome to other values, thereby producing a new individual)** [Column 2, lines 44-49].

While Keane provides a simulator for simulating quality of a business's product flow, Shinagawa et al teach genetic algorithm comprising crossover operator, and the combination would provide a system enabling a user efficiently and quickly solve multi-

constraint problems as commonly faced by businesses. It would have been obvious to one of ordinary skill in the relevant art at the time of instant invention to include Shinagawa et al's features into the Keane's invention for the reason cited above.

As per claim 7, Keane teaches the method of claim 1 wherein the business models **(Quality model 104, Business Model 105, Accounting Model 106, Macroeconomic model 109, Financial Market model 108)** comprise parameter data specifying characteristics of the business operations described by the business models **(model parameters)** [Figure 1 {104, 105, etc.} and Column 3, lines 52-67].

As per claims 9 and 25, Keane teaches the method of claim 8/15 wherein VPs comprise descriptions of at least one of: the natures of one or more goods or services provided **(goods/services purchased by customer)**, qualities of the goods or services **(defective products exchanged by customers)**, customers for goods and services, relations with other business models, and marketing to customers or business models [Column 5, lines 29-36].

As per claims 10 and 32, Keane teaches the method of claim 1/28 wherein business model descriptions comprises one or more computer-simulateable operational approaches (OA) which describe inputs to businesses and transformations of inputs to output values by businesses **(costs associated with production, including the**

capital, labor and material requirements, physical requirements of the plant, warehouse, etc.) [Column 5, lines 12-14 and 29-30 recited with column 4, lines 2-10].

As per claims 11 and 26, Keane teaches the method of claim 10/15 wherein the OAs comprise descriptions of at least one of: inputs needed for the goods or services provided **(material requirements for the product and quality assurance measures)**, technology employed to produce the goods or services, and capital and labor needed for production **(capital and labor requirements of the product and quality assurance measures)** [Column 4, lines 2-10].

As per claims 12 and 33, Keane teaches the method of claim 1/28 wherein business model descriptions comprises one or more computer-simulateable revenue mechanisms (RM) which describe pricing and cost models **(pricing information for the product, initial stock price and book value, cost requirements for quality assurance measures and production)** by which businesses acquire revenues [Figure 1 {106, 108}, column 4, lines 2-18 and column 2, line 55].

As per claims 13 and 27, Keane teaches the method of claim 12/15 wherein the RMs comprise descriptions of at least one of: a margin or an amount per transaction **(pricing information for the product)**, a margin or an amount per unit time, a margin or an amount per unit volume, a transaction pricing mechanism, a subscription pricing

mechanism, a flat rate pricing mechanism, and a membership-fee pricing mechanism [Column 4, lines 2-18 and column 2, line 55].

As per claim 14, Keane teaches the method of claim 1 wherein business models comprise descriptions of at least one of: one or more inputs to a business, one of more values output from a business, one or more transformations of inputs into output values by a business, labor and capital required for a business **(accounting, business and quality models containing capital, material, and labor requirements)**, and one or more pricing models for a business **(accounting model containing pricing information for the product)** [Figure 1 {104, 105, 106, 108, 109, 107}, column 3, lines 25-28, column 4, lines 2-18 and column 5, lines 29-30].

As per claim 15, Keane teaches a method for generating business models for solving a selected business problem comprising:

(a) describing a plurality of computer-simulateable building blocks **(memory 102 contains at least a quality model 104 and possibly other models, such as business 105, accounting 106, consumer 107, financial 108, and macroeconomic 109)**, [Column 3, lines 25-30, Column 7, lines 6-8 and Figure 1 {104, 105, 106, 108 and 109}] wherein the building blocks comprise one or more business elements of the business problem **(capital, material and labor requirements of quality assurance measures and production, product pricing, etc.)**, and wherein the building blocks further comprise:

(i) one or more computer- simulateable value proposition (VP) building blocks which describe output values provided by businesses **(goods/services purchased by customers, returning defective merchandise and switching to competitive produces due to defects)** [Column 5, lines 29-55],

(ii) one or more computer-simulateable operational approach (OA) building blocks which describe inputs to businesses and transformations of inputs to output values by businesses **(costs associated with production, including the capital, labor and material requirements, physical requirements of the plant, warehouse, etc.)** [Column 5, lines 12-14 and 29-30 recited with column 4, lines 2-10], and

(iii) one or more computer-simulateable revenue mechanism (RM) building blocks which describe pricing and cost models by which businesses acquire revenues **(pricing information for the product, initial stock price and book value, cost requirements for quality assurance measures and production)** by which businesses acquire revenues [Figure 1 {106, 108}, column 4, lines 2-18 and column 2, line 55],

(b) generating an initial plurality of business models [See discussion of claim 1d], wherein a business model describes operations of businesses for solving the business problem **(scheduled delivery plans)**, and wherein a business model comprises a plurality of building blocks and an associated operational performance model [See discussion of building blocks in 15a above];

(c) describing a business-model environment **(product flow)**, wherein the business-model environment comprises a plurality of computer-simulateable customer models **(customer and business models)**, wherein the customer models patronize the

business models and the business models respond to the customer models' patronizing them by sending values **(product purchased data 214 and market demand and returns data 227)** to the customer models that patronize the business models **(business model receives information regarding consumer returns from Block 807 of the consumer model)** [Column 5, lines 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25],

(d) determining the operational performances of the businesses described by the plurality of business models by simulating the plurality of business models and by simulating the environment, including simulating the customer models receiving values from the business models in response to the customer models patronizing the business models [See discussion of claim 1c above];

(e) generating a next plurality of business models from the simulated plurality of business models by performing an evolutionary method, wherein the evolutionary method uses a fitness dependent on the operational business-model performances and applies genetic operators to the building-blocks of business models [See discussion of claim 1d above];

(f) repeating one or more times (d) and (e), **(running another period of the model)**, wherein each repeat of (d) simulates the plurality of business models resulting from the previous iteration of (e) [Figure 2 {254}, column 4, lines 34-38 recited with column 6, lines 39-49, wherein "simulation continues" after the determination made at step 254, and "user given the opportunity to reconfigure (generate) next (or new) quality model to improve performance" inferring claimed "repeating the steps" for simulating

models obtained in the prior (or previous) steps as per user's choice of steps including (c) and (d)].

As per claim 17, Keane teaches the method of claim 15 wherein each business element comprises a description of at least one of: an input to a business, a value output from a business, a transformation employed by a business, and a consideration received by a business for an output value [Column 3, lines 25-42, wherein the citation of "various models are inputted" points to "at least an input" to a business, since each model is an "element" of the business].

As per claim 19, Keane teaches the method of claim 15 wherein the customer models descriptions of customer behaviors, wherein the behaviors comprise patronizing a business model **(good/services purchased or returned by customers; customers switching to competitive products due to defects)** [Column 5, lines 28-55].

As per claim 20, Keane teaches the method of claim 19 wherein the customer models descriptions of customer behaviors, wherein the behaviors further comprise choosing a business model to patronize **(goods/services purchased or returned by customers; customers switching to competitive products due to defects)** and being idle (customers not performing these tasks {purchasing or returning goods/services, or switching to competitive products} are considered to be in an idle state) [Column 5, lines 28-55].

As per claim 21, although not specifically taught by Keane, Sinagawa et al. teaches the method of claim 15 wherein the evolutionary method comprises:

(a) determining business-model fitness in dependence on the operational business-model performances [Column 6, lines 15-23, wherein "evaluating fitness" of proposed delivery plans or models indicating "determining business model fitness" and said fitness relating to "operational business model performance" as discussed in claim 1c above; The carrier allocation unit 11 evaluates the fitness of each proposed delivery plan received from the delivery planning unit 12, Column 9, lines 12-14; The carrier allocation unit 11 evaluates chromosomes 50, 50a, and 50b by calculating the fitness values of delivery plans 41, 42, and 43 derived from them, respectively, Column 9, lines 21-24],

(b) selecting one or more business models in dependence of on their fitness [Column 6, lines 15-23, wherein allocation unit 11 "selecting fittest individuals based on their fitness values", and cited individuals pointing to delivery plans or models or "business models", column 2, lines 22-23: individuals being candidate solutions, and said solutions are delivery plans, column 6, lines 21-23: choosing delivery plans or models as the optimal solutions; Based on the fitness values, the carrier allocation unit 11 selects a plurality of individual pairs, Column 9, lines 15-16], and

(c) transforming the selected business models into new business models by applying one or more genetic operators [Column 5, lines line 66 through column 6, line 3, wherein applying genetic algorithm and its operators crossover, mutation etc.

indicating reference's performing "transformation or transforming" above discussed selected delivery plans or models or business models into above discussed next or new delivery plans or business models. In support of genetic algorithm and operators thereof performing transformation, Applicant is referred to US Patent 6,480,832 B2, column 3, lines 53-65: Genetic algorithms transform populations into new populations, lines 54-55].

While Keane provides a simulator for simulating quality of a business's product flow, Shinagawa et al teach a simulating system including genetic algorithm comprising selection, crossover and mutation operators for building a fittest business model for delivery. Both Keane and Shinagawa et al are analogous art in the field of business modeling; thus, it would have been obvious to one of ordinary skill in the relevant art at the time of instant invention to include Shinagawa et al's features into Keane's invention, because the combination would provide a system enabling a user to efficiently and quickly solve multi-constraint problems as commonly faced by businesses.

As per claim 24, Keane et al. teaches the method of claim 15, wherein each building block describes at least one of: one or more inputs to a business, one or more values output from a business, one or more transformations of inputs into output values by a business **(accounting, business and quality models containing capital, material, and labor requirements)**, one or more pricing models for a business

(accounting model containing pricing information for the product), one or more performances of a business [Figure 1 {104, 105, 106, 108, 109, 107}, column 3, lines 25-28, column 4, lines 2-18 and column 5, lines 29-30, Column 2, line 55].

As per claim 28, Keane et al. teaches a method for generating business models for solving a selected business problem the method comprising:

(a) describing a plurality of computer-simulateable building blocks one or more computer simulateable value proposition (VP) building blocks which describe output values provided by businesses, and wherein the building blocks also comprise descriptions of one or more business elements of the business problem [See discussion of claim 15a and 1a above], and wherein business elements comprises descriptions at least one of: an input to a business, a value output from a business, a transformation employed by a business, and a consideration received by a business for an output value [See discussion of claim 17],

(b) describing one or more computer-simulateable customer models **(customer and business models)**, wherein the customer models patronize the business models and the business model responds to the customer models' patronizing it by sending values **(product purchased data 214 and market demand and returns data 227)** to the customer models that patronize the business model **(business model receives information regarding consumer returns from Block 807 of the consumer model)** [Column 5, lines 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25],

(c) determining the operational performance of a business described by a business model [See discussion of claim 15c above], wherein a business model comprises a plurality of building blocks and an associated operational performance model that describe operation of a business for solving the business problem [See discussion of claim 15a above], and wherein operational performance is determined by simulating:

(i) the business model [See discussion of claim 1c(i)], and

(ii) the one or more customer models receiving values from the business model in response to the customer models patronizing the business model [See discussion of claim 1c(ii) above], and

(d) generating a final business model of improved performance by performing an optimization method, wherein the optimization method:

(i) uses a fitness dependent on the operational business-model performances [See discussion of claim 15e, wherein considering "next model" in 15e as final one], and

(ii) substitutes or alters one or more building blocks of the business model [See discussion of claims 5 and 6 wherein genetic algorithm operators crossover and mutation are discussed. Moreover, crossover operator combines by substitution of portions (elements) of one entity (model) with portions of other entity (model) and mutation "changes or alters"].

As per claims 30 and 37, Keane teaches the method of claim 28 wherein the optimization method comprises at least one of: local search heuristics, simulated

annealing, reinforcement learning **(instructional tool for training)**, adaptive computation and machine learning, and an evolutionary optimization method [Column 2, lines 55-60, wherein reference system is used as "instructional tool for training" inferring claimed "reinforcement learning"].

As per claim 34, Keane teaches a method for generating business models for solving a selected business problem, the method comprising:

(a) describing a plurality of computer-simulateable building blocks, wherein the building blocks include one or more business elements of the business problem [See discussion of claim 15a above] and further comprise:

(i) one or more computer-simulateable value proposition (VP) building blocks which describe output values provided by businesses [See discussion of claim 15(i)] by comprising information describing at least the one of: the natures of one or more goods or services provided, qualities of the goods or services, customers for goods and services, relations with other business models, and marketing to customers or business models [See discussion of claim 9],

(ii) one or more computer-simulateable operational approach (OA) building blocks which describe inputs to businesses and transformations of inputs to output values by businesses [See discussion of claim 10] by comprising information describing at least one of: inputs needed for goods or services provided, technology employed to produce the goods or services, and capital and labor needed for production [See discussion of claim 11], and

(iii) one or more computer-simulateable revenue mechanism (RM) building blocks which describe pricing and cost models by which businesses acquire revenues [See discussion of claim 12] by comprising information describing at least one of: a margin or an amount per transaction, a margin or an amount per unit time, a margin or amount per unit volume, transaction pricing mechanism, a subscription pricing mechanism, a flat rate pricing mechanism, and a membership fee pricing mechanism [See discussion of claim 13],

(b) generating an initial plurality of business models, wherein a business model describes operations of businesses for solving the business problem, and wherein a business model comprises a plurality of building blocks and an associated operational performance model [See discussion of claim 15b above],

(c) describing a business-model environment, wherein the business-model environment comprises a plurality of computer-simulateable customer-models, wherein the customer models patronize the business models and the business models respond to the customer models' patronizing them by sending values to the customer models that patronize the business models [See discussion of claim 15c],

(d) determining the operational performances of the businesses described by the plurality of business models by simulating the plurality of business models and by simulating the environment, including simulating the customer models receiving values from the business models in response to the customer models patronizing the business models [See discussion of claim 15d above] and

(e) generating a next plurality of business models from the simulated plurality of business models by performing an evolutionary method, wherein the evolutionary method uses a fitness dependent on the operational business-model performances and applies genetic operators to the building-blocks of business models [See discussion of claim 15e above], and

(f) repeating one or more times (c) and (d), wherein each repeat of (c) simulates that plurality of business models resulting from the previous iteration of (d) [See discussion of claim 15f above].

As per claim 35, Keane teaches a method for generating business models for solving a selected business problem, the method comprising:

(a) describing a plurality of computer-simulateable building blocks, wherein the building blocks include one or more business elements of the business problem [See discussion of claim 34a above] and further comprise:

(i) one or more computer-simulateable value proposition (VP) building blocks which describe output values provided by businesses by comprising information describing at least one of: the natures of one or more goods or services provided, qualities of the goods or services, customers for goods and services, relations with other business models, and marketing to customers or business models [See discussion of claim 34(i) above],

(ii) one or more computer-simulateable operational approach (OA) building blocks which describe inputs to businesses and transformations of inputs to output

values by businesses by comprising information describing at least one of: inputs needed for goods or services provided, technology employed to produce the goods or services, and capital and labor needed for production [See discussion of claim 34(ii) above], and

(iii) one or more computer-simulateable revenue mechanism (RM) building blocks which describe pricing and cost models by which businesses acquire revenues by comprising information describing at least one of: a margin or an amount per transaction, a margin or an amount per unit time, a margin or amount per unit volume, a transaction pricing mechanism, a subscription pricing mechanism, a flat rate pricing mechanism, and a membership fee pricing mechanism [See discussion of claim 34(iii) above],

(b) describing a business-model environment, wherein the business-model environment comprises a plurality of computer-simulateable customer models, wherein the customer models patronize the business models and the business models respond to the customer models' patronizing them by sending values to the customer models that patronize the business models, [See discussion of claim 1b above], generating an initial plurality of business models, wherein a business model describes operations of businesses for solving the business problem, and wherein a business model comprises a plurality of building blocks and an associated operational performance model [See discussion of claim 15b above],

(c) determining the operational performances of the businesses described by the plurality of business models by

(i) simulating the plurality of business models [Column 3, lines 25-30, wherein cited "quality model, business model etc." and "models simulated" indicating reference's teaching the claimed feature],

(ii) simulating the environment, including simulating the customer models, and receiving values from the business models [See discussion of claim 15d above], and

d) generating a next plurality of business models from the simulated plurality of business models by performing an evolutionary method, wherein the evolutionary method uses a fitness dependent on the operational business-model performances and applies genetic operators to the building-blocks of business models [See discussion of claim 15e above], and

e) repeating one or more times (c) and (d), wherein each (c) simulates that plurality of business models resulting from the previous iteration of (d) [See discussion of claim 15e above].

As per claim 36, Keane teaches a method for generating business models for solving a selected business problem the method comprising:

a) describing a plurality of computer-simulateable building blocks, wherein the building blocks include one or more business elements of the business problem [See discussion of claim 34a above] and further comprise:

(i) one or more computer-simulateable value proposition (VP) building blocks which describe output values provided by businesses by comprising information describing at least one of: the natures of one or more goods or services provided,

qualities of the goods or services, customers for goods and services, relations with other business models, and marketing to customers or business models [See discussion of claim 34(i) above],

(ii) one or more computer-simulateable operational approach (OA) building blocks which describe inputs to businesses and transformations of inputs to output values by businesses by comprising information describing at least one of: inputs needed for goods or services provided, technology employed to produce the goods or services, and capital and labor needed for production [See discussion of claim 34(ii) above], and

(iii) one or more computer-simulateable revenue mechanism (RM) building blocks which describe pricing and cost models by which businesses acquire revenues by comprising information describing at least one of: a margin or an amount per transaction, a margin or an amount per unit time, a margin or an amount per unit volume, transaction pricing mechanism, a subscription pricing mechanism, a flat rate pricing mechanism, and a membership fee pricing mechanism [See discussion of claim 34(iii) above],

b) describing a business-model environment **(product flow)**, wherein the business-model environment comprises a plurality of computer-simulateable customer models **(customer and business models)**, wherein the customer models patronize the business models and the business models respond to the customer models' patronizing them by sending values **(product purchased data 214 and market demand and returns data 227)** to the customer models that patronize the business models

(business model receives information regarding consumer returns from Block 807 of the consumer model) [Column 5, lines 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25]; and

c) determining the operational performance of a business described by a business model, wherein a business model comprises a plurality of building blocks and an associated operational performance model that describe operation of a business for solving the business problem, and wherein operational performance is determined

(i) by simulating the business model [Column 3, lines 25-30, wherein cited "quality model, business model etc." and "models simulated" indicating reference's teaching the claimed feature], and

(ii) by simulating the environment, including simulating the customer models receiving values from the business models in response to the customer models patronizing the business models [See discussion of claim 1c above], and

d) generating a final business model of improved performance by performing an optimization method, wherein the optimization method

(i) uses a fitness dependent on the operational business-model performances [See discussion of claim 28d(i) above], and

(ii) substitutes or alters one or more building blocks of the business model [See discussion of claim 28d(ii) above].

As per claim 38, Keane teaches computer executable software instructions stored on a computer readable medium **(computer program)** [lines 20-22 of Abstract,

Column 3, lines 16-17, wherein "program" infers claimed "instructions" and "memory" encompasses storage media or devices, such as HD, CD, Diskette etc. which are considered computer readable and are used to store "programs or instructions"], the software instructions for causing a computer to:

(a) characterize a plurality of computer-simulateable building blocks, wherein the building blocks comprise one or more business elements of the business problem [See discussion of claim 15a above], and wherein the building blocks further comprise

(i) one or more computer- simulateable value proposition (VP) building blocks which describe output values provided by businesses [See discussion of claim 15a(i) above],

(ii) one or more computer-simulateable operational approach (OA) building blocks which describe inputs to businesses and transformations of inputs to output values by businesses [See discussion of claim 15a(ii) above], and

(iii) one or more computer-simulateable revenue mechanism (RM) building blocks which describe pricing and cost models by which businesses acquire revenues [See discussion of claim 15a(iii) above],

(b) generate an initial plurality of business models, wherein a business model describes operations of businesses for solving the business problem, and wherein a business model comprises a plurality of building blocks and an associated operational performance model [See discussion about building blocks in claim 15b above],

(c) describing a business-model environment, wherein the business-model environment comprises a plurality of computer-simulateable customer models, wherein

the customer models patronize the business models and the business models respond to the customer models' patronizing them by sending values to the customer models that patronize the business models [See discussion of claim 15c above],

(d) determine the operational performances of the businesses described by the plurality of business models by simulating the plurality of business models and by simulating the environment, including simulating the customer models receiving values from the business models in response to the customer models patronizing the business models [See discussion of claim 15d above], and

(e) generate a next plurality of business models from the simulated plurality of business models by performing an evolutionary method, wherein the evolutionary method uses a fitness dependent on the operational business-model performances and applies genetic operators to the building-blocks of business models [See discussion of claim 15e above], and

(f) repeat one or more times (d) and (e), wherein each repeat of (d) simulates that plurality of business models resulting from the previous iteration of (e) [See discussion of claim 15f above].

As per claim 39, Keane teaches a computer executable software instructions stored on a computer readable medium (Keane: Abstract, lines 20-22 read with column 3, lines 16-17, wherein "program" infers claimed "instructions" and "memory" encompasses storage media or devices, such as HD, CD, Diskette etc. which are

considered computer readable and are used to store "programs or instructions"), the software instructions for causing a computer to:

a) characterize a plurality of computer-simulateable building blocks, wherein the building blocks include one or more business elements of the business problem [See discussion of claim 35a above] and further comprise:

(i) one or more computer-simulateable value proposition (VP) building blocks which describe output values provided by businesses by comprising information describing at least one of: the natures of one or more goods or services provided, qualities of the goods or services, customers for goods and services, relations with other business models, and marketing to customers or business models [See discussion of claim 35a(i) above],

(ii) one or more computer-simulateable operational approach (OA) building blocks which describe inputs to businesses and transformations of inputs to output values by businesses by comprising information describing at least one of: inputs needed for goods or services provided, technology employed to produce the goods or services, and capital and labor needed for production [See discussion of claim 35a(ii) above], and

(iii) one or more computer-simulateable revenue mechanism (RM) building blocks which describe pricing and cost models by which businesses acquire revenues by comprising information describing at least one of: a margin or an amount per transaction, a margin or an amount per unit time, a margin or amount per unit volume, a transaction pricing mechanism, a subscription pricing mechanism, a flat rate pricing

mechanism, and a membership fee pricing mechanism [See discussion of claim 35a(iii) above],

b) describing a business-model environment, wherein the business-model environment comprises a plurality of computer-simulateable customer models, wherein the customer models patronize the business models to receive values from the business models, generating an initial plurality of business models, wherein a business model describes operations of businesses for solving the business problem, and wherein a business model comprises a plurality of building blocks and an associated operational performance model [See discussion of claim 35b above],

c) determining the operational performances of the businesses described by the plurality of business models by (i) simulating the plurality of business models and (ii) simulating the environment, including simulating the customer models, and receiving values from the business models [See discussion of claim 35c above], and

d) generating a next plurality of business models from the simulated plurality of business models by performing an evolutionary method, wherein the evolutionary method uses a fitness dependent on the operational business-model performances and applies genetic operators to the building-blocks of business models [See discussion of claim 35d above], and

(e) repeating one or more times (c) and (d), wherein each (c) simulates that plurality of business models resulting from the previous iteration of (d) [See discussion of claim 35e above].

Claim 40. Computer executable software instructions stored on a computer readable medium **(computer program)** [lines 20-22 of Abstract, Column 3, lines 16-17, wherein "program" infers claimed "instructions" and "memory" encompasses storage media or devices, such as HD, CD, Diskette etc. which are considered computer readable and are used to store "programs or instructions"], the software instructions for causing a computer to:

(a) characterize a plurality of computer-simulateable building blocks, wherein the building blocks include one or more business elements of the business problem [See discussion of claim 36a above] and further comprise:

(i) one or more computer-simulateable value proposition (VP) building blocks which describe output values provided by businesses by comprising information describing at least one of: the natures of one or more goods or services provided, qualities of the goods or services, customers for goods and services, relations with other business models, and marketing to customers or business models [See discussion of claim 36a(i) above],

(ii) one or more computer-simulateable operational approach (OA) building blocks which describe inputs to businesses and transformations of inputs to output values by businesses by comprising information describing at least one of: inputs needed for goods or services provided, technology employed to produce the goods or services, and capital and labor needed for production [See discussion of claim 36a(ii) above], and

(iii) one or more computer-simulateable revenue mechanism (RM) building blocks which describe pricing and cost models by which businesses acquire revenues by comprising information describing at least one of: a margin or an amount per transaction, a margin or an amount per unit time, a margin or an amount per unit volume, transaction pricing mechanism, a subscription pricing mechanism, a flat rate pricing mechanism, and a membership fee pricing mechanism [See discussion of claim 36a(iii) above],

(b) describe a business-model environment, wherein the business-model environment comprises a plurality of computer-simulateable customer models, wherein the customer models patronize the business models and the business models respond to the customer models' patronizing them by sending values to the customer models that patronize the business models [See discussion of claim 36b above],

(c) determine the operational performance of a business described by a business model, wherein a business model comprises a plurality of building blocks and an associated operational performance model that describe operation of a business for solving the business problem [See discussion of claim 36c above], and wherein operational performance is determined

(i) by simulating the business model [See discussion of claim 36c(i) above], and

(ii) by simulating the environment, including simulating the customer models receiving values from the business models in response to the customer models patronizing the business model[See discussion of claim 36c(ii) above], and

(d) generate a final business model of improved performance by performing an optimization method [See discussion of claim 36d above], wherein the optimization method

(i) uses a fitness dependent on the operational business-model performances [See discussion of claim 36d(i) above], and

(ii) substitutes or alters one or more building blocks of the business model [See discussion of claim 36d(ii) above].

Response to Arguments

4. Applicant's arguments filed January 30, 2006 have been fully considered but they are not persuasive.

Applicant argues that Shingawa does not teach limitation 1(d) because Shingawa teaches away from the direct use of genetic algorithms to solve business problems, using genetic algorithms in a different way for a different purpose than the claimed invention.

Examiner respectfully disagrees and directs the Applicant to the following passages in the Shingawa reference.

The genetic algorithm process is described on Column 2, lines 38-50.

When an optimization problem is entered to the problem solver presented by Shingawa, searching strategy optimization means creates individuals using a genetic algorithm, the individuals having their respective chromosomes, each of which indicates a strategy for a solution search [Column 4, lines 29-34].

When it is necessary to search for the next-generation candidates, the searching strategy optimization means applies the selection, crossover, and mutation processes to the individuals with reference to their respective fitness values, thereby producing new individuals of the next generation [Column 4, lines 48-53].

The two processes of finding solutions and optimizing the solution searching strategies are running in parallel, and one's output is used as the other's input for the next cycle [Column 5, lines 1-4].

Using both genetic algorithms and OR-based searching techniques, the delivery process simulator executes computational tasks for delivery planning [Column 5, lines 23-26].

With a genetic algorithm, the carrier allocation unit optimizes the solution searching strategies, including the order of carriers to be allocated to the destinations [Column 5, lines 59-61].

The carrier allocation unit, in which a genetic algorithm is implemented, repetitively applies the genetic operators (i.e., selection, crossover, and mutation) to the individuals, whose chromosomes represent different solution searching strategies. The population of individuals thus produce their offspring successively [Column 5, line 66 – Column 6, line 4].

The fitness of the proposed delivery plans is evaluated, and based on their fitness values, the carrier allocation unit selects the fittest individuals out of the present population and mates them with one another to produce the next generation [Column 6, lines 16-20].

In summary, Shingawa applies a set of selection, crossover, and mutation processes to the best individuals (different solution searching strategies) of a generation (as determined by their respective fitness values) to produce new individuals of the next generation, which mirrors the concepts of genetic algorithms.

Applicant argues that Shingawa recognizes that the traditional approach (start with a potential solution, evaluate it, apply search strategy) does not always yield satisfactory results.

The Examiner asserts that there are no limitations in the claim language requiring the business models to be "satisfactory" or optimal. The claim limitations only require

the next generation of business models to be generated by transforming a previous set of business models.

Applicant argues that Shingawa concludes that genetic algorithms consume too much time to solve various problems available in real life.

The Examiner asserts that this passage of Shingawa merely explains the rationale for relying on both genetic algorithms and operations research to solve problems. Furthermore, the claim limitations do not preclude the use of additional analytical techniques, as long as genetic algorithms are applied to a set of business models to yield the next generation of business models.

Applicant argues that Singawa applies genetic algorithms to the search strategy and not the models themselves.

The Examiner respectfully disagrees. The Examiner asserts that each model is a representation of a potential strategy towards solving a problem; thus, "models" are analogous to the strategies in the Shingawa reference. As cited above, Shingawa states that the processes of finding solutions and optimizing the solution searching strategies run in parallel, one's output being used as the other's input for the next cycle. The carrier allocation unit, in which a genetic algorithm is implemented, repetitively applies the genetic operators to the individuals, whose chromosomes represent different

solution searching strategies. The population of individuals is thus used to produce successive offspring; hence, genetic algorithms are used in this process. The carrier allocation unit evaluates the fitness of the proposed delivery plans, and based on their fitness values, the carrier allocation unit selects the fittest individuals out of the present population and mates them with one another to produce the next generation.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Choi whose telephone number is (571) 272 6971. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Peter Choi
Examiner
Art Unit 3623

PC

March 10, 2006

Susanna Diaz
SUSANNA M. DIAZ
PRIMARY EXAMINER
AU 3623